

CLAIMS

1. **(Currently Amended)** A multiple replaceable reservoirs or cartridge for use with electrostatic spraying device of the type wherein at least one electrostatically sprayable material is contained in a reservoir housing and at least one spraying nozzles region is in fixed or replaceable relation to the body of the multiple replaceable reservoirs or cartridges, the electrostatic spraying device comprising high voltage circuitry arranged so that, in use, the material issuing from the spraying nozzles region in a direction away from said spraying nozzles region forms an electrostatically charged spray, said spray having a high voltage and a polarity and wherein an electric field forms in the vicinity of the nozzles during use, the multiple replaceable reservoirs or cartridges comprising:
- at least one electrostatically sprayable material storage region;
 - at least one replaceable ~~or fixed~~ spraying nozzles region;
 - at least one fixed spraying nozzles region;
- at least one material conducting tube region connecting the material storage region to the spraying nozzles region, wherein during electrostatic spraying operations material flows from the material storage region to the spraying nozzles region either in ~~passive~~ passively gravity induced or user-induced pneumatically pumping mean arrangement; and
- at least one nozzle-ring configuration for generating the electric field in the vicinity of the ~~nozzles~~ spraying nozzles region so that spraying from the nozzles is focused when the forward extremity of the nozzle-ring configuration is brought within a predetermine distance from an earthed target to be sprayed.

2. **(Currently Amended)** ~~A method~~ The spraying nozzle region as claimed in claim 1 in which the nozzles are or a nozzle tube is mounted in fixed relation to the body of the electrostatic spraying device and the nozzle-ring configuration is in the form of an annular cable mounted on the body of electrostatic spraying device in substantially
5 concentric relation with, ~~and usually in fixed relation to,~~ the nozzles. The nozzle-ring configuration and the nozzles may however be adjustable with respect to one another in the direction of spraying.

3. **(Currently Amended)** ~~A method~~ The spraying nozzle region as claimed in claim 1 in which the nozzles ~~is~~ are mounted in fixed relation to the body of the multiple
10 replaceable reservoirs and the nozzle-ring configuration is in the form of an annular cable mounted on the body of reservoir in substantially concentric relation with, ~~and usually in fixed relation to,~~ the nozzles. The nozzle-ring configuration and the nozzles may however be adjustable with respect to one another in the direction of spraying.

4. **(Currently Amended)** A device as claimed in claim 2 wherein the tip of the
15 nozzles ~~is~~ being arranged within the spraying nozzles region are mounted in fixed relation to the body of the device and mounted at an arranged angle, typically of about 45 degree, to the axis of the body of the device.

5. **(Currently Amended)** A device as claimed in claim 3 wherein the tip of the nozzles ~~is~~ being arranged within the spraying nozzles region are mounted in fixed
20 relation to the top of the multiple replaceable reservoirs and mounted at an arranged angle, typically of about 45 degree, to the axis of the top of the multiple replaceable reservoirs.

6. (Currently Amended) A device as claimed in claim 2 wherein the tip of the nozzle tube is mounted in fixed relation to the body of the device and mounted at an arranged angle, typically in the range of from 0 to 45 degree, to the axis of the body of the electrostatic spraying device.
- 5 7. (Currently Amended) A device as claimed in claim 3 wherein the tip of the nozzles is being arranged within the spraying nozzles region are mounted in fixed relation to the top of the multiple replaceable reservoirs and mounted at an arranged angle, typically in the range of from 0 to 45 degree, to the axis of the ~~top~~ spraying nozzles region of the multiple replaceable reservoirs.
- 10 8. (Currently Amended) A device as claimed in claim 2 wherein the ~~multiple spraying nozzles units~~ are mounted in fixed relation to the body of the device and to the body of an individual reservoir through a material conducting tube region, and several materials in electrostatically sprayable form may be released simultaneously for mixing and releasing at the ~~multiple spraying nozzles units~~.
- 15 9. (Currently Amended) A device as claimed in claim 3 wherein each nozzle from the multiple spraying nozzles units ~~are~~ is mounted in fixed relation to the top of each multiple replaceable reservoirs being arranged within the multiple replaceable reservoirs region, and several materials in electrostatically sprayable form may be released simultaneously for mixing and releasing at the ~~multiple spraying nozzles units~~.
- 20 10. (Currently Amended) An electrostatic spraying device comprising ~~easing~~ housing a high voltage generator, at least a dispensing nozzles from which an electrostatically sprayable material is sprayed ~~in use wherein when sprayed~~, said ~~spray~~ sprayable material had a voltage and a polarity, and reservoirs for containing materials to

be sprayed in bulk ~~wherein during use said reservoir contains bulk material to be sprayed,~~
further comprises:

a pumping means for supplying said material through a passage leading to the
dispensing nozzles, means coupling the high voltage output of the generator to the bulk
5 material so that the voltage is conducted through the bulk material to the material present
at the dispensing nozzles whereby the material issuing from the nozzles under the
influence of an applied voltage forms an electrostatically charged spray wherein an
electric field forms in the vicinity of the nozzles during use, characterized by the
provision of a nozzle-ring configuration on which a voltage of the same polarity as that
10 applied to the material to be sprayed is developed in use, the nozzle-ring configuration
being located forwardly of the dispensing nozzles in the direction of spraying and
arranged in such a way as to generate the electric field in the vicinity of the nozzles so
that spraying from the nozzles is focused to prevent immediate loss of the charged
~~aerosol spray and prevent~~ facilitate spraying from the nozzles; and
15 an actuating means for activating the high voltage generator and the pumping
means.

11. **(Currently Amended)** A device as claimed in claim 10 wherein the nozzle-ring
configuration generates the electric field such that spraying from the nozzles is focused to
prevent immediate loss of the charged ~~aerosol spray and prevent~~ facilitate spraying from
20 the nozzles when the forward extremity of the nozzle-ring configuration is brought within
a predetermine distance from an earthed target to be sprayed.

12. **(Currently Amended)** A device as claimed in claim 10 in which the pumping means comprises means for pneumatically pumping said the material from the reservoirs to the dispensing nozzles.

13. **(Currently Amended)** A device as claimed in ~~any one~~ of claims 10 in which
5 pumping of the material is produced in response to operation of actuating means by the user.

14. **(Original)** A device as claimed in claim 13 in which operation of the actuating means is accompanied by priming of the passage leading to the nozzle outlet with the material in preparation for pumping.

10 15. **(Original)** A device as claimed in claim 14 in which operation of the actuating means is also accompanied by operation of a high voltage generator associated with the means for applying high voltage to the material to be electrostatically sprayed whereby all of these operations together with pumping of the material are effected in response to a single operation of the actuating means by the user.

15 16. **(Original)** A device as claimed in claim 14 in which pumping of the material and/or application of the high voltage thereto are affected in response to a separate operation of the actuating means or operation of a different actuating means which effects pumping and/or electrostatically spraying.

17. **(Currently Amended)** An electrostatic spraying device comprising ~~easing~~
20 ~~housing~~ a high voltage generator, a special arranged dispensing nozzles from which an electrostatically sprayable material is sprayed in use wherein when sprayed said spray had a voltage and a polarity, multiple replaceable or fixed reservoirs for containing materials to be sprayed wherein during use said reservoirs contain materials to be

sprayed, means coupling the high voltage output of the generator to the material so that the voltage is conducted through the materials to the materials present at the dispensing nozzles whereby the materials issuing from the nozzles under the influence of an applied voltage forms an electrostatically charged spray, further comprising a nozzle-ring

5 configuration on which a high voltage of the same polarity as that applied to the materials to be sprayed is developed in use, the nozzle-ring configuration being located forwardly of the nozzles in the direction of spraying and arranged in such a way as to generate the electric field in the vicinity of the nozzles so that spraying from the nozzles is focused when the forward extremity of the nozzle-ring configuration is brought within a
10 predetermine distance from an earthed target to be sprayed.

18. **(Currently Amended)** ~~A method~~ The spraying nozzle region as claimed in claim 17 in which the nozzles ~~is~~ are mounted in fixed relation to the body of the ~~device~~ multiple replaceable reservoirs and the nozzle-ring configuration is in the form of an annular cable mounted on the body of ~~device~~ reservoir in substantially concentric relation with, ~~and~~
15 ~~usually in fixed relation to,~~ the nozzles. The nozzle-ring configuration and the nozzles may however be adjustable with respect to one another in the direction of spraying.

19. **(Original)** A device as claimed in claim 17 in which the means for supplying said material to the nozzles is operable to feed the material passively.

20. **(Original)** A device as claimed in claim 17 in which the means for supplying said
20 material to the nozzles is operable to feed the material by a user-induced operation.

21. **(Original)** A device as claimed in claim 17 wherein said device further generates iontophoresis effect to enhance sprayed material transport through the skin until the

forward extremity of the nozzle-ring configuration is within a distance of 2 cm from a human skin target or an earthed target.

22. **(Currently Amended)** A device as claimed in claim 18 wherein said device further comprises a source of high voltage and wherein the nozzle-ring configuration is
- 5 composed of a semi-insulating material (e.g. Si:GaAs etc.) which is coupled to the source of high voltage, said semi-insulating material having sufficient conductivity to permit a potential to be established at a location forwardly of said nozzles which is of the same polarity as that applied to the material emerging at the nozzles.